
Module 2: Communication

MODULE PREVIEW

Communication is the exchange of thoughts, messages, or information by means of speech, signals, or writing. For communication to be effective, it should be highly reliable in providing accurate transmission of information.

Many problems in the workplace have been analyzed and found to have faulty communication as a primary or contributing cause. Therefore, it is important to evaluate the communication within each facility. Clear and concise communication can have positive effects such as providing a safe workplace, motivated workers, high productivity, and continuous quality improvement.

This module will cover the most predominant types of communication: oral, written, and nonverbal. It also includes the methods of transferring information, the importance of listening skills, major barriers to successful communication, and communication tools.



TYPES OF COMMUNICATION

When selecting a type of communication (oral, written, or nonverbal) consider the following criteria:

Requirements or Drivers: For example, DOE Orders or federal/state/local laws and regulations may require written procedures for abnormal conditions or alarms.

Cost: All other things being equal, the least costly and most effective method should be used. Communicating non-routine and urgent information may require faster types.

Impact: Identify the method that will provide the greatest impression.

Effectiveness: If your purpose is to inform, a conversation followed by a memo can work well. If your purpose is to communicate complex details, a technical report may be the most appropriate.

Multi-Type Communication

Research shows people have different learning styles. Some people absorb information best when they hear it. Others are visual learners. Another group learns by “doing.” By presenting information using as many communication methods as practical, your audience can absorb the information through the method that works best for them. For example, if you are teaching a new procedure to a group, you might start by having them read the procedure. Next, explain the procedure. And last, have them “do” the procedure, demonstrating their knowledge.

Using techniques where two or more types of communication (oral, written, and nonverbal) are combined can be especially effective. Reading a manual of instruction by itself may not be as effective as combining oral instructions with visual aids.

Thomas Dahle studied the effectiveness of types of communication in business and industry. The results of his study on communication from management to employees are summarized in Figure 2-1.

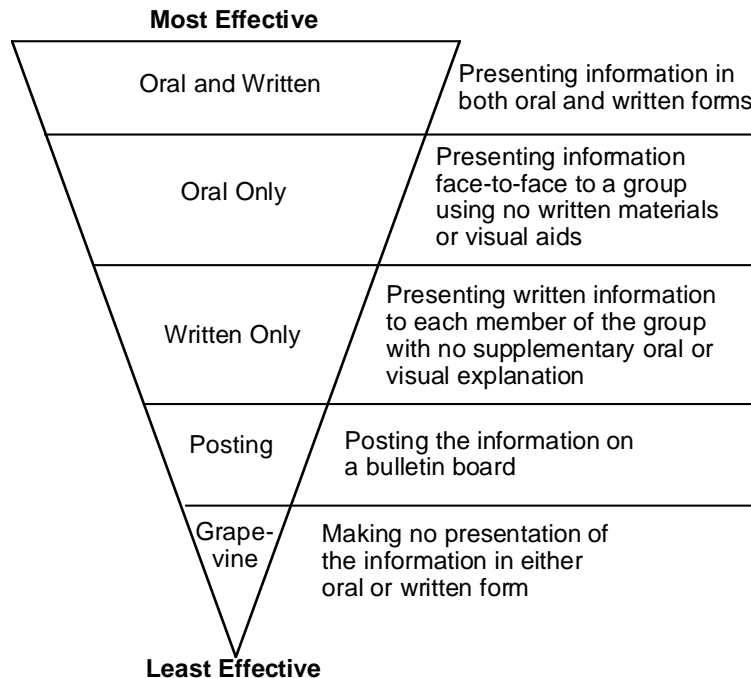


Figure 2-1: Communication Effectiveness

Another expert on business communication, Dale Level, surveyed industry supervisors and asked them to rate the effectiveness of different types of communication in various situations. Level's findings are shown on the following table:

Situation	Most Effective Communication Methods	Least Effective Communication Methods
Information requires immediate employee action.	Oral followed by written	Written only
Information requires future employee action.	Written only	Oral only
Information is of a general nature.	Written only	Oral only
Communicating a company directive or order.	Oral followed by written	Oral only
Information relays an important company policy change.	Oral followed by written	Oral only
Communicating with your immediate supervisor about work progress.	Oral followed by written	Oral only
Promoting a safety campaign.	Oral followed by written	Oral only
Commending an employee for noteworthy work.	Oral followed by written	Written only
Reprimanding an employee for work deficiency.	Oral followed by written	Written only
Settling a dispute among employees about a work problem.	Oral only	Written only

Feedback

When considering the types of communication used to convey safety, emergency, and personnel-related information, managers and supervisors must also consider how feedback and noise become barriers to the exchange of thoughts, messages, or information.

Feedback is one of the most important aspects of the communication process and one at which supervisors and managers must be skillful. It is used to clarify that the message received is the one intended. By asking for more information, paraphrasing the message in the receiver's own words, and listening to the input you can determine whether or not the message was clear and accurately received.

In a team situation, each member receives feedback from other members helping to determine the appropriateness and effectiveness of their actions. Feedback is especially important in task conditions that are changing rapidly where direct equipment or instrument feedback is unavailable. Feedback is also used during constructive critiques of people, programs, and projects where both positive and negative issues are raised.

Consider the following when communicating with workers:

- listen to the message,
- the object is to express rather than impress,
- a message may generate a different response than anticipated,
- choosing the wrong medium can result in high communication efficiency but low effectiveness, and
- listen to the receiver's feedback.

Nonverbal, oral, or written feedback can result in more effective communication. Problems caused by faulty communication can be reduced when managers and supervisors have the necessary skills and knowledge to give appropriate nonverbal, oral, or written feedback.

Nonverbal Communication

People who have an awareness of nonverbal communication can more accurately communicate information and be more successful at organizing, persuading, and leading others. Nonverbal style affects our interactions with others and has an impact on work effectiveness. A high percentage of all interpersonal communication cues, including body language, are nonverbal, and have a big influence on the effectiveness of workplace communication. In a normal two-person conversation, the verbal components carry less than half of the meaning of the situation.

When oral and nonverbal communication happen simultaneously and are contradictory, workers are more likely to trust and believe the nonverbal message, because nonverbal signals are more spontaneous, harder to fake, and less apt to be manipulated.

Effective use of nonverbal behaviors includes:

- confirming oral messages,
- modifying or elaborating on oral messages,
- accenting aspects of the oral message, and
- signaling one's attitudes and intentions.

Misunderstandings and distortions in communication can result from failing to recognize or respond to the nonverbal signals that accompany what workers say. Nonverbal behaviors can also signal changes in the relationship between the worker and the manager. Change is signaled when a worker's slow, quiet verbalization intensifies, relaxed posture stiffens, or the emotional level increases. It is a mistake to ignore nonverbal behavior.

A key point to remember is that the face and eyes are a source of a great deal of information on the emotional states of workers. Workers don't always verbally express what they are saying, but you can often 'read' how they are feeling if you watch the nonverbal signals expressed through the face and eyes.

Some of the elements of nonverbal communication at work are:

- nonverbal feedback—actions such as facial expressions, gestures, postures, positions, and various movements of the body (body language);

- audible devices;
- signals; and
- symbols and signs.

Nonverbal feedback: Nonverbal feedback is extremely important. Managers and supervisors must realize that a nonverbal message may generate a different response than anticipated. Feedback such as facial expressions, hand gestures, posture, and eye movement or eye contact can communicate negativism, acceptance, attentiveness, confidence, understanding, or other feelings.

Audible devices: Audible communications are used to transmit operating and emergency information within the facility. They include warning sirens, horns, bells, and whistles.

Methods should be implemented to ensure all facility personnel are promptly alerted to facility emergencies. When personnel are working in areas where the public address system or emergency signals cannot be heard, personal pagers that vibrate or alternate visual methods for alerting these persons should be utilized.

Visual devices: These include flashing and/or colored lights, or gages used to alert workers of emergency situations or abnormal conditions, especially when working in areas where audible devices cannot be heard.

Signals: Hand signals, flags, and sign language are used when high noise, distance, or other reasons limit audible communication.

Symbols and signs: Many different symbols and signs are found throughout the laboratory to impart general information and alert workers to particular situations or working conditions. A few examples are the recycling symbol, handicap parking symbol, and those shown below. The *ES&H Sign Catalog*, for signs used at LANL, is available online.

<http://iosun.lanl.gov:2001/htmls/policy/sign/sign.html>



Oral Communication

The quickest and often most effective type of communication is oral communication. Oral communication should be clear and concise. As in all communication, the sender and intended receiver should be readily identifiable. Feedback is necessary to ensure that the message is clearly understood. For example, when giving instructions for the operation of equipment, the message should be repeated by the receiver to ensure that instructions are correctly understood.

Emergency Communication: In emergency situations, effective communication is essential. It must quickly get the attention of all affected personnel and must clearly and concisely identify the nature of the emergency and the steps personnel must take for protection.

Although nonverbal communication such as horns, sirens, or bells are used in emergency situation, public address systems are also installed in many facilities as another method for emergency communication. These systems offer the advantage of being able to transmit specific instructions related to the emergency at hand. However, the effectiveness of a public address system can be defeated if it is regularly used for routine pages and announcements that have nothing to do with emergencies. In nuclear facilities, control areas should have the capability of overriding other users of the public address system for emergency announcements. Facility telephones and other point-to-point communication channels should be used in lieu of the public address system whenever practical.

The use of portable radios can be an effective means of providing mobile point-to-point communication. However, radio usage should not be allowed in areas where electronic interference with materials or equipment may result. All emergency communication systems must be controlled to ensure that they do not disrupt normal operations and that they are available and effective in an emergency. Periodic testing is needed to ensure systems are functional.

General Information Communication: Oral communication is needed for sharing general information. During shift turnovers, for example, questioning and feedback techniques are used to pass on information and to obtain clarification of system status.

Safety meetings are held to discuss safety issues. Briefings, presentations, and videos are used to share information on new experiments, audit findings, and budget reviews. Oral feedback is used to guide workers and give results of performance appraisals.

Oral communication involves:

- useful language such as the phonetic alphabet,
- questioning,
- feedback,
- electronic media, and
- briefings, meetings, and presentations.

Useful Language: Useful language, such as the phonetic alphabet, helps to clarify the message being sent. Some letter and number combination can be easily misunderstood. Phonetic alphabets use a single, easily-recognized word for each letter of the alphabet so that the person receiving the information will have no doubt what letter is intended.

The laboratory also has many abbreviations and acronyms. These should come from approved lists to ensure that sender and receiver are in agreement as to meaning. The use of acronyms and abbreviations saves time, provides for quicker understanding, and simplifies record keeping.

Questioning: Whenever a situation arises that needs further clarification as to information, details, and facts, oral questioning can be used as a quick way to obtain the information.

Oral Feedback: Oral feedback is vital to clarification of the message. By repeating a message, the sender is assured that the message was received and understood. Communication is not complete until the sender is certain that the message has been received and correctly understood. Other forms of feedback are critiques, paraphrasing, and performance appraisal meetings.

Electronic Media: Videos, voice tapes, telephones, public address systems, and two-way radios are some examples of the electronic media used for oral communications. They help to communicate ideas and information and are used in emergency situations.

Briefings, Meetings, and Presentations: These communication methods are primarily used to impart information. Included are safety meetings, in and out briefings for audits, and group meetings.

Written Communication

Whenever important instructions need to be communicated, written documentation is involved. Written instructions such as operating procedures, plans, and standards are found throughout the Laboratory in many different forms. When communicating Laboratory and facility directives, policies, and procedures or information of a general nature, electronic media can be used. This includes E-mail and faxes.

Safety in the Workplace: Many different kinds of written communication are used to support safety in the workplace. Included are safe operating procedures (SOPs), signs, postings, and labels. Written communiques like safety notices, lessons-learned bulletins, procedures, and checklists also enhance safety in the workplace. Checklists and phone numbers for immediate emergency actions can be found in the Laboratory telephone book.

Procedures and checklists provide vital information about the facility status. The Lockout/Tagout Program protects personnel from injury, protects equipment from damage, maintains operability of plant systems, and maintains the integrity of the physical boundaries of plant systems. Written communication used in emergency situations include SOPs, Building Emergency Plans, the Emergency Procedures Manual, and maps. During an emergency, written communication, such as directions on fire extinguishers and labeling on pipes, switches, breakers, and on control or power panels, are very important. Following an emergency, written documentation summarizes the event.

Operations: All operations involve written communication like SOPs, checklists, and job aids. Job aids provide information useful to operators in performing their duties. They remind users of information that might otherwise be overlooked and provide guidance that is not procedural in nature. Operator aids may supplement approved procedures, but they should not be used in lieu of approved procedures or be guidelines to generic procedures. A listing of all approved operator aids should be maintained, along with a copy of each aid posted in the facility. Job aids may be graphs, charts, curves or other portions of approved procedures.

Written Feedback: Communication of this nature is given to employees by managers in the form of performance appraisals and critiques. Employees give feedback to management in the form of upward appraisals and operational, experimental, or other test results. In training activities, evaluation sheets provide feedback to

trainers about courses and their effectiveness. Other means of written communication are memos, bulletin boards, routing, and the *Laboratory Newsbulletin*.

COMMUNICATION TOOLS

Managers and supervisors are responsible for effective communication within their facilities. Using the right tools at the right time will lead to more efficient operations with fewer problems. The following tables summarize communication tools used at the Laboratory.

Nonverbal Communication Tools

Tool	Example	Use
Audible devices	Warning sirens, horns, bells, whistles	Used in emergency communication to alert personnel to unusual/abnormal conditions.
Signals	Hand signals, flags, sign language	Used to communicate without words.
Symbols	Radiation trefoil, recycling symbol, handicap parking	Used to communicate without words.
Feedback (body language)	Facial expressions, hand gestures, posture, eye movement & contact	Communicates feelings (e.g., acceptance, attentiveness, confidence, understanding, etc.).
Visual	Flashing lights, colored lights, gages	Used in emergency communication, as warning devices, or in everyday operations.

Oral Communication Tools

Tool	Example	Use
Useful language	Phonetic alphabet, standard terminology (acronyms, abbreviations)	Used in laboratory communication to clearly convey a message
Questioning	Interviews	Used to obtain additional information, details, and facts
Feedback	Repeating, critiquing, paraphrasing, performance appraisals	Used to get clarification and performance indicators
Electronic media	Video, voice tapes, telephones, P.A. systems, two-way radios	Used to communicate ideas, information, and in emergency situations
Meetings	Briefings; safety/team/group meetings, and technical presentations	Used to impart information such as safety, new experiments, ideas

Written Communication Tools

Tool	Example	Use
Signs, postings, labels (may contain symbols)	Danger, radiation areas, high-voltage	Used for warnings, giving directions, general or specific information
Communiqués	Safety notices, news bulletin, lessons learned bulletin, memos, security brochures, critiques	Used to give information, details, updates
Documentation	Manuals, standards, procedures, SOPs, proposals, action plans	Used to communicate information or directions
Job aids	Checklists, guides, graphs, charts	Used to show "how to"
Electronic media	Electronic mail, computers, faxes	Used to communicate information without paper
Feedback	Performance appraisals, surveys, test results, evaluation sheets, critiques	Used to communicate results of actions or work

LISTENING SKILLS

Listening is a skill that has a dramatic impact on your effectiveness as a supervisor or manager. An often mentioned attribute of respected bosses is that they “really listen to me.” Supervisors and managers who listen to their employees can build rapport, swiftly clear up misunderstandings, and build esteem in both themselves and others.

An effective listener sets in motion a positive, mutually rewarding process by showing interest in the workers and in what they are saying. Listening encourages honesty, understanding, and a feeling of security and self-confidence in workers. When workers know they are talking to a listener instead of a boss who sits in judgment, they openly suggest ideas and share feelings. It is a key way for managers and supervisors to gather information about their areas of responsibility.

Do's and don'ts of listening

- stop talking
- keep an open mind
- don't make assumptions
- find areas of common interest
- take the initiative
- hold rebuttal until the speaker is done
- exercise listening skills regularly
- analyze what is being said nonverbally
- focus attention on ideas
- hold questions until the speaker is done
- evaluate the content of the message, not mannerisms or appearances
- capitalize on the speed of thought by summarizing

Managers and supervisors show their desire to listen to workers by their actions. Be ready to listen to workers. When listening be positive rather than negative and try to learn something. Do not interrupt the sender in mid-sentence, instead wait for an appropriate pause. To ensure that the whole message is understood, ask the sender to repeat or clarify by asking who, what, where, when, and how.

There are different types of listening:

- appreciative—hearing what is being said
- discriminating—sorting stimuli
- critical—judging
- comprehensive—understanding
- empathetic—putting yourself in the receiver's position

The perception of a message can be negatively impacted by the following deterrents:

- pretending to be attentive
- assuming the subject is unimportant
- mentally criticizing the speaker's delivery
- overreacting to certain words, phrases, or opposing ideas
- listening only for facts; not overall meaning
- outlining everything
- permitting the speaker to be inaudible or incomplete
- day dreaming
- dual focus

Active listening is when the receiver takes an active part in the communication process.

Elements of active listening are:

- be attentive (genuinely pay attention)
- label nonverbal clues, e.g., “you appear upset”
- paraphrase (put the speaker's words into your own words)
- ask open-ended questions for clarification
- use prompts and nonverbal reinforcement
- try to empathize accurately (really feel what the other is feeling)

BARRIERS

Two of the most common barriers to communication are:

- different meanings of words and phrases; and/or
- perceptual differences of messages.

People only partially-listen to what others say, and psychological studies show that many ignore information that conflicts with established patterns of thought.

However, these are not the only barriers to communication. Barriers can be perceived as well as explicit. Managers and supervisors may find they have to deal with multiple barriers.

Some barriers to effective communication are:

Physical barriers: These barriers distract the listener from hearing what is said. Some examples are the distance between the listener and the speaker, inappropriate timing, and physical handicaps.

Psychological barriers: Examples of this type of barriers are a lack of trust, the tendency to smother or hold back information, and stress in the listener and/or speaker.

Individual barriers: Examples here are the beliefs, education, religion, socioeconomic, or culture differences between the speaker and the listener.

Internal barriers: The sender attempts to project the intent, motivation, values, and emotions of the message to the listener. Each listener filters, distorts, deletes, and interprets information received.

Selective listening: At times, only parts of a message are heard. If the listener is uncomfortable or if the information is too difficult or too easy, the listener may be tempted to stop listening.

Defensive listening: Occasionally only the parts of a message that can be used for a rebuttal are heard by the listener. The listener may be composing the next statement instead of listening to all the message.

Overcoming Barriers

Organizational communication has an important role in the success or failure of management techniques. Gene E. Burton suggests the following ways to improve communication:

- consider the source—receivers tend to judge credibility on their evaluation of the source.
- provide workers with accurate and up to date information.
- avoid surprises and rumors.
- develop some kind of communication center within the organization.
- communicate orally (although time consuming, oral communication has been found to be superior in achieving understanding).

Carl W. Nelson said that managers and supervisors can make sure they are not the cause of poor performance by using the following communication techniques:

- provide clear instructions
- demonstrate patience (not annoyance) if the worker asks for clarification
- explain the purpose or reason for the assignment
- provide clear guidance on written documents like SOPs
- provide review sessions on audible devices, gages, etc. to ensure understanding.

MODULE SUMMARY

Effective communication is essential to ensure a competent and productive organization. Managers and supervisors at the Laboratory must be highly skilled in effective communication techniques as well as work toward improving the communication skills of their workers. They need to be familiar with the most effective communication methods for various kinds of situations at work. Whether imparting information, training workers, or responding to worker concerns or emergency situations, managers and supervisors need to know how to get their message across and how to listen to the responses of their employees. To provide a



safe workplace where workers are motivated, productive and maintain a high degree of quality, everyone at the Laboratory must continually work to improve their communication skills.

Effective communication can only happen when there is an accurate transmission of information. Remember: *The only message that counts is the message received.*

SELF-ASSESSMENT

Scenario



Workers were performing a monthly limiting-conditions-for-operation surveillance of the emergency generator load test and reported that a diesel engine did not start in the required time because the mode switch was in the wrong position.

Generator room personnel informed the test director that the diesel engine was ready for operation. At the emergency motor control center, the stationary operating engineer had completed procedure pre requisites except for placing the mode control switch in the automatic position. He believed that final communication to place the switch in the automatic position would come from the test director. The test director gave the generator room personnel permission to begin the surveillance test. When the stationary operating engineer realized that power was lost, he placed the mode control switch in the automatic position.

Adequate work planning and proper communication between a central control point coordinator and personnel performing procedural steps are extremely important. Although there were no safety violations during this event, there was a communication breakdown between the test director and the stationary operating engineer.

Questions

- (1) The final report on the above scenario stated that the operational communications should follow a consistent format. From the list below, select the best way these workers might have used feedback for clear, consistent oral communication.

- a. transmit message—>contact line management—>activate alarms if necessary
- b. transmit message—>repeat message back—>confirm message
- c. get approval before transmitting message—>transmit message—>continue operation
- d. contact line management—>transmit message—>log message into daily log

(2) Written communication might have helped avoid the situation above. Any of the following tools are useful in operational communication except

- a. safe operating procedures
- b. job aids, checklists, guides
- c. phonetic alphabet
- d. signs, postings, labels

(3) A form of nonverbal communication that may have been useful in the above scenario might have been

- a. the use of a series of hand signals to communicate that the equipment was ready to test
- b. a direct phone line between the test director and the stationary operating engineer
- c. a checklist generated from the testing procedure
- d. a control panel light in the generator room that signals when the mode control switch is in the automatic position

Answers

1-b; 2-c; 3-d